

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID: M05402
Date Received: 03/18/10
Date Extracted: 03/19/10
Date Analyzed: 03/22/10
Matrix: Water
Units: ug/L (ppb)

Client: Alaskan Copper Works
Project: Metro Self Monitor, F&BI 003181
Lab ID: 003181-01 x10
Data File: 003181-01 x10.035
Instrument: ICPMS1
Operator: AP

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	99	60	125

Analyte:	Concentration ug/L (ppb)
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Chromium	368
Nickel	375
Copper	371
Zinc	19.3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Alaskan Copper Works
Date Received:	Not Applicable	Project:	Metro Self Monitor, F&BI 003181
Date Extracted:	03/18/10	Lab ID:	I0-141 mb
Date Analyzed:	03/22/10	Data File:	I0-141 mb.012
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	AP

Internal Standard:	% Recovery:	Lower	Upper
Germanium	99	Limit:	Limit:
		60	125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Nickel	<1
Copper	<1
Zinc	<1

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Date of Report: 03/25/10

Date Received: 03/18/10

Project: Metro Self Monitor, PO M05402, F&BI 003181

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 003164-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Chromium	ug/L (ppb)	4.50	4.40	2	0-20
Nickel	ug/L (ppb)	3.88	4.06	5	0-20
Copper	ug/L (ppb)	29.6	29.7	0	0-20
Zinc	ug/L (ppb)	<1	<1	nm	0-20

Laboratory Code: 003164-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chromium	ug/L (ppb)	20	4.50	87 b	67-132
Nickel	ug/L (ppb)	20	3.88	89	73-119
Copper	ug/L (ppb)	20	29.6	89 b	50-144
Zinc	ug/L (ppb)	50	<1	91	46-148

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	97	66-135
Nickel	ug/L (ppb)	20	98	67-134
Copper	ug/L (ppb)	20	101	66-134
Zinc	ug/L (ppb)	50	97	57-135

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Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 - More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

March 25, 2010

 DUPLICATE

INVOICE #10ACU0325-1

Accounts Payable
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

RE: Project Metro Self Monitor, PO M05402, F&BI 003181 - Results of testing
requested by Gerry Thompson for material submitted on March 18, 2010.

1 sample analyzed for Total Chromium, Copper, Nickel and Zinc
by Method 200.8 @ \$85 per sample \$ 85.00

Amount Due \$ 85.00

FEDERAL TAX ID #(b) (6)

003181

SAMPLE CHAIN OF CUSTODY K0 ME 03/18/10

ADY

Send Report To

Ginnell Thompson

Company

Alaska Ocean Works

Address

628 S. Harbor St

City, State, ZIP

Seattle WA 98134

Phone #

206-571-6033 Fax # 206-582-4209

SAMPLER'S (signature)

PROJECT NAME/NO.

Metro Self Monitor

PO #

M05402

REMARKS

Page # _____ of _____

TURNAROUND TIME

☐ Standard (2 Weeks)☒ RUSH 4 day

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days☐ Return samples☐ Will call with instructions

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED										Notes
						TPH-Diesel	TPH-Gasoline	BJEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	X-Chloro				
M05402	01	3/18/10	1:00	HEO	1											

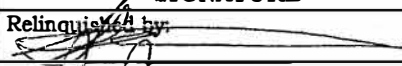

Friedman & Bruya, Inc.
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Seattle, WA 98119

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Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: 	Ginnell Thompson	ALW	3/18/10	2:00pm
Received by: 	Nhan Phan	FEB T	3/18/10	✓
Relinquished by:				
Received by:				

Samples received at 18 °C

FRIEDMAN & BRUYA, INC.

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March 25, 2010

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on March 18, 2010 from the Metro Self Monitor, PO M05402, F&BI 003181 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Kortland Orr
Project Manager

Enclosures
ACU0325R.DOC